

AMENDMENTS TO THE SPECIFICATION:

Please amend the paragraph beginning at page 2, line 12, as follows:

A1
--This partial batch electron beam exposure technology projects a pattern of several μ m ~~quire~~ square area at once which appears repeatedly in a device pattern by using a stencil type electron beam mask (called Si stencil mask, an aperture, a partial batch mask, a cell projection mask, or a block mask-) having at least one opening in Si film of about 20 μ m of thickness. Accordingly, the number of shots of the electron beam is greatly reduced compared to the conventional EB direct drawing technology, and an improvement of throughput can be attained|--

Please amend the paragraph bridging pages 2 and 3, beginning at page 2, line 22, as follows:

A2
--However, even if this partial batch electron beam exposure method is used, for a pattern without the repetition in patterns, the pattern must be directly drawn by the electron beam of the rectangle shape with a size of about several μ m ~~quire~~ square (variable-shaped electron beam exposure method). For this reason, a further improvement in a throughput is required in mass-production|--

Please amend the paragraph beginning at page 4, line 4, as follows:

A3
--Fig. 4 shows the Figs. 4(a) - 4(c) are schematic figure views of the a conventional EPL (electron beam projection lithography) mask|--

Please amend the paragraph beginning at page 4, line 12, as follows:

--Next, when the size of a batch projection region on a mask is ~~1mm~~, 1mm², a drawing pattern is divided into the size of ~~1mm~~ 1mm² as shown in Fig. 4(b).

HAYES SOLOWAY P.C.
130 W. CUSHING ST.
THICKSON, AZ 85701
TEL: 520 882 7623
FAX: 520 882 7643

125 CANAL STREET
MANCHESTER, NH 03101
TEL: 603 668 1400
FAX: 603 668 8567

Please amend the paragraph beginning at page 4, line 15, as follows:

11. ~~Finally, when arranging ~~1mm~~ 1mm^2 size batch projection regions on an 8 inch silicon wafer 43, as ~~usually~~ conventionally shown in Fig. 4(c), they are arranged so that the move distance, i.e., the move time from a certain batch projection region to the next batch projection region to be projected may become short. Therefore, in many cases, each of the batch projection regions ~~are~~ is arranged so that the adjacency relations of the original drawing pattern may not be changed as much as possible.~~

Please amend the paragraph beginning at page 5, line 4, as follows:

12. ~~Since high projection accuracy is one of the important ~~object~~ objects of the EPL mask, curvature and distortion of the mask or wafer are ~~problem~~ problems.~~

Please amend the paragraph beginning at page 6, line 16, as follows:

13. ~~Fig. 1 is a schematic view of an embodiment of the electron beam projection mask of the present invention;~~

14. ~~Fig. 2 is a~~ Figs. 2(a) - 2(c) are schematic ~~view~~ views of an EPL (electron beam projection lithography) mask of an embodiment of the present invention;

15. ~~Fig. 3 is a~~ Figs. 3(a) - 3(c) are schematic ~~view~~ views of an EPL mask of another embodiment of the present invention; and

16. ~~Fig. 4 is a~~ Figs. 4(a) - 4(c) are schematic ~~view~~ views of a conventional EPL mask;

Please amend the paragraph beginning at page 7, line 1, as follows:

17. ~~Fig. 1 shows a schematic view of one embodiment of the electron beam projection mask according to a the present invention;~~

Please amend the paragraph beginning at page 7, line 23, as follows:

HAYES SOLOWAY P.C.

130 W. CUSHING ST.

THICKSON, AZ 85701

TEL: 603 882 7623

FAX: 603 882 7643

175 CANAL STREET

MANCHESTER, NH 03101

TEL: 603 668 1400

FAX: 603 668 8567

11.1
--Referring to ~~Fig. 2~~, it shows the Figs. 2(a) - 2(c), there are shown schematic figure views of the EPL (electron beam projection lithography) mask as one embodiment of the present invention.

Please amend the paragraph bridging pages 8 and 9, beginning at page 8, line 24, as follows:

11.2
--Moreover, as shown in ~~Fig. 3~~ Figs. 3(a) - 3(c), pattern density can also be equalized by arranging the batch projection regions so that the region 31 (diagonal region) where pattern density is high, and the region 32 (white region) where pattern density is low form a stripe shape, alternatively|--

Please amend the paragraph bridging pages 9 and 10, beginning at page 9, line 21, as follows:

11.3
--A stencil mask and its production method are described in, for example, Publication of Japanese Laid-Open patent No. 5-216216. The stencil mask has an opening portion (does not have a substance), electrons are ~~pass~~ passed through the opening portion, and in a portion without an opening, electrons are scattered and does not pass through|--

Please amend the paragraph beginning at page 10, line 5, as follows:

11.4
--A stencil type mask is advantageous to ~~earn~~ achieve an excellent contrast. An electron passes without being scattered since the opening portion does not have a substance, and at the portion without the opening has a predetermined thickness with silicon, almost all electrons can not pass (mere a few passes). However, since a pattern is formed by an opening, an inner pattern falls, so, a doughnut pattern etc. is not realizable|--

Please amend the paragraph beginning at page 10, line 13, as follows:

HAYES SOLOWAY P.C.
130 W. CLINTING ST.
TUCSON, AZ 85701
TEL 520 882 7623
FAX 520 882 7643

125 CANAL STREET
MANCHESTER, NH 03101
TEL 603 668 1400
FAX 603 668 8567

11.3
On the other hand, the membrane type mask is described in Publication of Japanese Laid-Open patent No. 5-62888. The membrane type mask is made by forming an electron dispersion film on an electron penetration film, and pattern is formed by removing the electron dispersion film. The portion in which the electron dispersion film remains does not let an electron pass, but the portion in which an electron dispersion film does not exist (namely, portion in which only an electron penetration film exists) ~~makes~~ permits an electron to penetrate.--

Please amend the paragraph bridging pages 10 and 11, beginning at page 10, line 23, as follows:

11.4
However, even ~~the~~ when an electron penetration film is used, since some electrons are scattered, contrast is not so excellent as the stencil type mask. However, since the electron dispersion film ~~has~~ is arranged on the electron penetration film, a doughnut pattern can be formed.--

Please amend the paragraph beginning at page 11, line 3, as follows:

11.5
Though this membrane type mask is developed for X-ray lithography, it is possible to use also for EB lithography, at present. That is, many of membrane type masks used for X-ray lithography can be used also for electron lithography. Fundamentally, the X-ray dispersion film scatters electrons, and an X-ray penetration film ~~penetrates~~ permits electrons to penetrate. Generally, the mask is produced by using a silicon nitride film as an electron penetration film, and covered with heavy metals such as tungsten and chromium as an electron dispersion mask.--

HAYES SOLOWAY P.C.
130 W. CUSHING ST.
LUCSON, AZ 85701
TEL 520 882 7673
FAX 520 882 7643

175 CANAL STREET
MANCHESTER, NH 03101
TEL 603 668 1400
FAX 603 668 8567

Please amend the paragraph bridging pages 11 and 12, beginning at page 11, line 18, as

follows:

110
--However, in recent years, there is a technology of EPL which enables the batch exposure of the large area to realize ~~the~~ a high throughput. This technology aims to carry out the batch exposure of the large area, and a doughnut pattern is also concerned, there is a movement which is going to apply the membrane type mask which can also form a doughnut pattern. If the stencil type mask of a doughnut pattern is divided into two masks and perform the projection exposure with two masks, a doughnut pattern can be formed.

HAYES SOLOWAY P.C.

130 W. CUSHING ST.
TUCSON, AZ 85701
TEL: 520 882 7643
FAX: 520 882 7644

175 CANAL STREET
MANCHESTER, NH 03101
TEL: 603 668 1400
FAX: 603 668 8567